OPERATIONS DESERT SHIELD/STORM

TRANSPORTATION AND DISTRIBUTION FIELD OBSERVATIONS

TRANSPORTATION LESSONS LEARNED (TL2) PROGRAM

U.S. ARMY TRANSPORTATION SCHOOL
FORT EUSTIS, VIRGINIA

OPERATION DESERT SHIELD/ STORM

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MG Kenneth R. Wykle
Commandant

COL Elijah Toney
Assistant Commandant

LTC Michael J. Brown
Director of Quality and Administration

CPT David V. Coon II
ODS Special Project Officer

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U.S. ARMY TRANSPORTATION SCHOOL
FORT EUSTIS, VIRGINIA

FORWARD

The success of *OPERATION DESERT SHIELD* and *OPERATION DESERT STORM* is truly a testament to the professionalism and dedication of the U.S. Army Transportation Corps. The months of hard work by our soldiers under the most strenuous of conditions made the rapid victory possible.

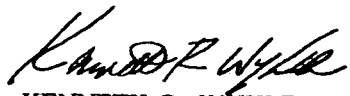
OPERATIONS DESERT SHIELD and *DESERT STORM* were the first major tests of the Total Army concept, directly involving 56% of the Transportation Corps. We proved that units from Active and Reserve Components can quickly and successfully come together and accomplish our assigned missions. In addition, we validated many of our force modernization initiatives, including our new wheeled vehicle and watercraft modernization programs which have been in the planning or procurement stages during the past decade.

OPERATION DESERT STORM also proved that the quality of our equipment and especially of our soldiers is unsurpassed. Our training and doctrine are well-founded and successful, and once again we demonstrated that our soldiers, coming from many diverse backgrounds, can succeed in the most difficult of missions.

This booklet is written just over one year after the victory in the desert, yet only a few months after our last active Transportation unit redeployed to its home station and after the last Reserve unit redeployed. The last remaining unit to redeploy was, of course, a Transportation Corps unit. We were there when *DESERT SHIELD* began in August 1990, and we were still there to ensure all of our forces and their equipment safely returned. The enclosed observations are a composite of some several hundred sources from personnel and units who participated. They are straight forward, hard-hitting and composed with a no-nonsense look at our doctrine, organization, training, leader development and materiel.

There is work still to be accomplished. Training of soldiers and units, as well as force modernization, must be continuous. Be assured, we are working and will continue to work actions resulting from our experiences in *OPERATIONS DESERT SHIELD* and *DESERT STORM*.

In short, our units again demonstrated the raison d'etre of the Transportation Corps — "Nothing happens until something moves." Perhaps General Norman Schwarzkopf said it best during his after action briefing to the world, "It was an absolutely gigantic accomplishment, and I can't give credit enough to the logisticians and transporters who were able to pull this off."



KENNETH R. WYKLE
Major General, U.S. Army
Commandant

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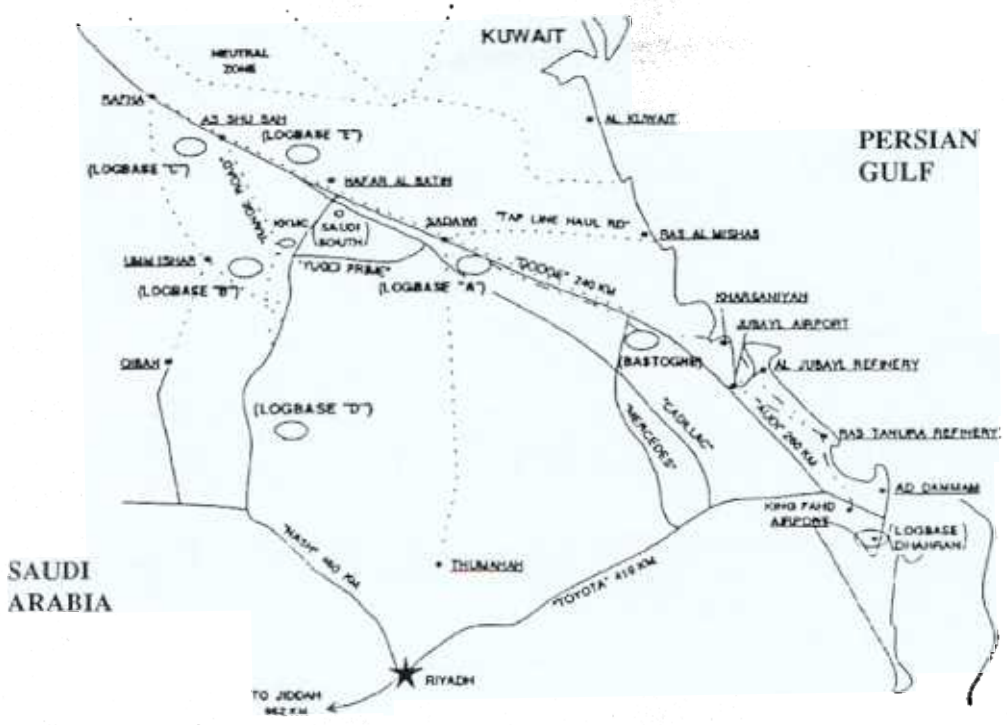
We welcome your comments and observations on this report. Please mail your input to:

Commandant, U.S. Army Transportation School
ATTN: ATSP-QA, Fort Eustis, Virginia 23604

Use of the third person pronoun "he" and any of its forms is intended to include both masculine and feminine genders.

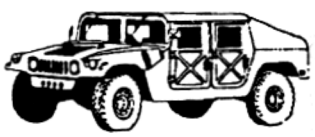
The material appearing in this publication is presented to help keep individuals within the Army, knowledgeable of current trends and views in military transportation and distribution for the purpose of enhancing professional development. The material should NOT be construed as official Army *"Lessons Learned"* and does not necessarily reflect official policy of the U.S. Army.

SWA SUSTAINMENT
LOGISTICS BASES



ROAD DISTANCES

DAMMAM - RIYADH 410 KM
DAMMAM - BASTOGNE 240KM
BASTOGNE - KKMC 260 KM
RIYADH - KKMC 460 KM
RIYADH - JIDDAH 962 KM



SECTION I

INTRODUCTION:

OPERATIONS DESERT SHIELD and DESERT STORM were the ultimate tests of the skill of Army logisticians. The Transportation Corps played a key role in the success of coalition forces in the battle against Iraqi aggression. Never before have we had to move so many troops and so much equipment over such distances so quickly. The distances between the ports of debarkation and the tactical assembly areas in Saudi Arabia far surpassed those previously experienced in modern mechanized warfare, and presented unique challenges for our personnel and equipment. Yet, we rose to the challenge. *DESERT SHIELD and DESERT STORM* were the first major tests of our AirLand Battle doctrine, much of our force modernization, and our total force concept.

SECTION II

BACKGROUND:

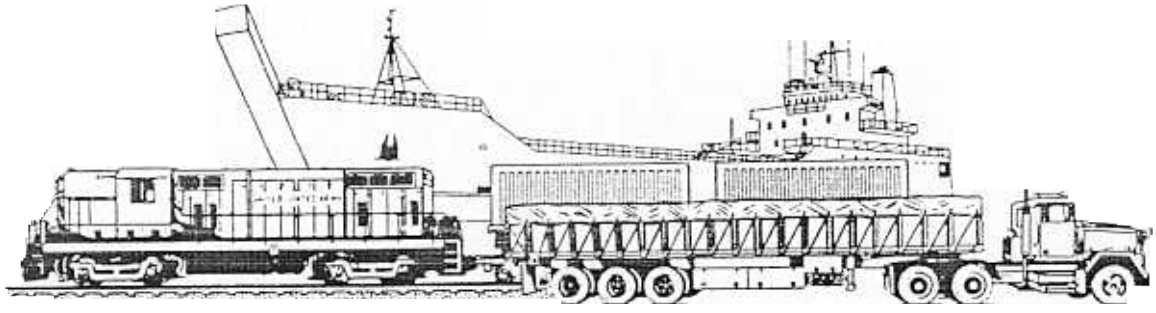
The Directorate of Quality and Administration (DQA) at the U.S. Army Transportation School maintains the Transportation Lessons Learned (TL2) program and database. DQA, therefore, became the focal point for the *OPERATIONS DESERT SHIELD and DESERT STORM* (ODS) transportation and distribution lessons learned effort. DQA obtained well over 200 information sources arising from our efforts in Southwest Asia. These were received in the form of unit after action reports, individual observations, briefings, interviews and video tapes. Each one was carefully reviewed and analyzed.

To process the influx of material, the Transportation School established a working group to initially analyze and consolidate the raw information received into observations for eventual review by a Colonel-level executive committee. The executive committee pinpointed the desired resultant actions and assigned responsibilities for these actions. While the Department of the Army has reserved the right to declare an "Observation" to be a "Lesson Learned," and to publish these lessons learned, we have noted some trends of interest to the Transportation Corps community. This booklet will outline the observations that have come from this process and represents the final distillation of the hundreds of sources collected.

DQA also worked with the Combined Arms Support Command (CASCOM) and the Center for Army Lessons Learned (CALL) at Combined Arms Command (CAC) to ensure that these observations are entered into those channels.

The main body of this booklet is generally arranged by echelon—CONUS/Europe, EAC, Corps, and Division. While published in one particular section, some of the observations may actually be applicable to other echelons as well. We recognize that the placement of a few observations may seem arbitrary to some and ask the reader's indulgence.

The "TL2" number found on the topic line of each observation cross references that observation with its entry in the TL2 Database. The reader can also find an Index of Observations in TL2 number order at page 16.



SECTION III
CONUS/EUROPE

*For many, **DESERT SHIELD/STORM** was truly a transporters' war. Even so, it was not without its transport planning and execution problems. This section focuses mainly on transportation observations associated with getting to the war. Included are those pertaining to the deployment process as well as to the elements, facilities, and systems who supported the massive movement of units, equipment, and supplies.*

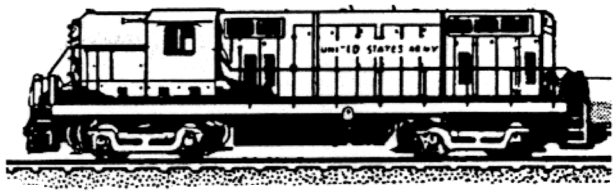
A. TOPIC: Transportation Terminal Unit (TTU) TDA
(TL2 NO. 7464)

DISCUSSION:

1. Organization. During ODS the TDA for TTUs was found to be inadequate. Current authorizations are for 75 personnel, but most TTUs had personnel shortages. Twenty-four (24) hour operations or multiple ships on berth quickly exhausted available TTU personnel. TTUs also require their own organic CODES team and equipment so they will not have to depend upon ad hoc teams thrown together from a variety of sources in the heat of deployment. In addition, a number of training shortcomings were identified in the area of ship loading. These include basic knowledge of the characteristics of ships, ships' equipment, labor relations, labor ordering, Army equipment characteristics, port capabilities and handling of hazardous cargo.

2. Materiel. TTUs found that they had to borrow equipment from other units to accomplish their mission. Equipment borrowed consisted primarily of ADP hardware and radios. The radios authorized were inadequate in number, range and operating channels. TTUs often had to operate multiple sites, and the lack of radios with sufficient range complicated critical, timely communications.

OBSERVATION: TTU organizations proved their worth during ODS, but require significant structural, equipment, and training modifications to meet the time sensitive demands of the contingency environment.



B. TOPIC: Rail Training Deficiencies
(TL2 NO. 7473)

DISCUSSION:

Many of the rail MOS reservists who reported to Sunny Point were either untrained or not technically proficient in their MOSs. Unit training had proven largely impractical during peacetime due to the limited facilities and equipment available for unit use. Only one class for each of the rail MOSs is conducted each year, thereby increasing the difficulties experienced by the units in maintaining personnel proficiency.

OBSERVATION: Maintaining the proficiency of low-density MOSs is difficult and may not be cost effective. A major effort to better train rail MOSs is required.

C. TOPIC: Strategic Sealift Capability
(TL2 #7486)

DISCUSSION:

1. Sealift capability limitations were an operational problem during ODS. The U.S. does not have enough Fast Sealift Ships (FSS) to move more than one division at a time.

2. The U.S. Merchant Marine is shrinking and cannot be relied upon to furnish U.S. flagged ships in sufficient quantities to deploy U.S. forces for an operation of even ODS magnitude.

3. Although Congress has initiated an attempt to overcome this shortfall by appropriating funds for sealift acquisition, progress towards acquiring these new ships proceeds at a very slow pace.

4. A number of studies are currently underway to quantify total sealift requirements. One such study, the Defense Mobility Requirements Study (DMRS), will address a number of scenarios, to include a contingency corps sealift deployment.

OBSERVATION: The U.S. does not have sufficient ships of the types required for large scale contingency deployment operations.

D. TOPIC: Sunny Point Port Inadequacies (TL2 #7489)

DISCUSSION:

The infrastructure at Sunny Point Port revealed many operational inadequacies during the deployment to SWA. For example, the cranes at Sunny Point are old and not in the best of repair. Unit requests to procure new ones have repeatedly been frustrated due to funding constraints. The age and frequently required maintenance of port MHE often slowed or impeded efficient ship loading operations. The railroad tracks and switches are in need of repair. Extreme care had to be taken in moving rail cars, as the cars derailed easily.

OBSERVATION: Higher priority must be given at Sunny Point for MHE equipment readiness and facility maintenance. Track right of way requires upgrading.

E. TOPIC: Port Standard Operating Procedures (TL2 #7490)

DISCUSSION:

1. The 1173rd TTU deployed to the port of Savannah to support the ODS deployment. Since this was the first time the unit had worked at this port, unit personnel were unfamiliar with local facilities, policies and procedures. A comprehensive port SOP would have reduced the confusion and ensured smoother transition during port operations.

2. MTMC's "Handbook on Supercargoes" was often not available to Military Sealift Command or deploying units. The areas of responsibility were not known or understood by the various agents involved in the move. Numerous ad hoc actions required to expedite the supercargoes' move aboard ship were taken by the TTU's responding to local necessities (i.e. assigning berthing spaces to deploying units, notifying ITOs of supercargo port call, arranging for meals and lodging, briefing vessel masters, typing up supercargo rosters, etc.).

OBSERVATION: The importance of good written instructions to the initiation and continuity of operations for each contingency deployment port needs emphasis. Responsibilities in all aspects of port operations, including the handling of supercargoes, need to be clearly stated and understood by potential TTUs, ITOs, and deploying units prior to initiation of deployment operations.

F. TOPIC: IMA TDA Filler Personnel in the Training Base (TL2 #7494)

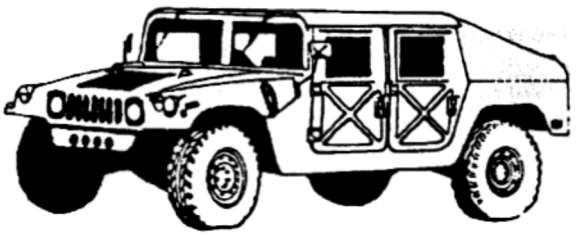
DISCUSSION:

1. The Transportation School lost significant numbers of TC and other personnel early in the operation to support ODS requirements. There was no backfill from nondeployable or RC personnel and the methodology for obtaining IRR fillers was torturous and resistant to providing manpower.

2. The TRADOC guidance that vacancies created by ODS could not be filled with IMAs hampered the ability to accomplish the School mission. Had the war been more protracted or casualties higher, the training base would have been hard pressed to provide large numbers of trained replacement personnel.

3. Perhaps a concept that uses a "Battle Roster" to provide predesignated personnel support for certain TOE units from TDA units should be created. The TDA units would simultaneously (or upon initial RC callup) be backfilled with preprogrammed IMA. These personnel should train on an annual basis with their respective TOE/TDA units.

OBSERVATION: ODS revealed an unforeseen manpower shortage in the training base caused by detaching School and other TDA personnel to meet deploying unit personnel shortfalls. Since there was not a full mobilization, IMA assets were not available to replace detached personnel.



G. TOPIC: Manpower/Equipment School Support (TL2 #7495)

DISCUSSION:

The deployment of 7th Trans Gp and the FSS from Lambert's Point left the Transportation School with an extremely limited ability to conduct essential hands-on training on equipment. The lack of trucks, materiel and container handling equipment, a fast sealift ship, and Army watercraft with their operators and crews (which are normally provided by deployable units) severely hampered training and forced the School to improvise suboptimal training events. The equipment and trained crews are not readily obtainable from the RC or from the civilian sector.

OBSERVATION: Dependence on deployable assets for essential training base support has an adverse impact on ability to properly conduct service school training courses when the equipment and/or personnel deploy.

H. TOPIC: Strategic Deployment from Europe (TL2 #7498)

DISCUSSION:

1. Use of MILVANS and sea containers to move critical supplies and equipment was initially thought to be a good idea. However, operational decisions and the lack of previous deployment experience by the theater led to unit and sustainment supplies and equipment deploying on multiple ships. As a result, the unit materiel sometimes arrived in the theater late, the owning unit could not be located to coordinate the pick up of their supplies and equipment, and/or the Materiel Management Centers (MMCs) could not identify container contents or deal with container volume.

2. While the limited amount of maritime and aerial mobility assets may require the optimizing of cargo space, equipment and accompanying supplies should be loaded in unit sets to the maximum extent possible.

3. Both unit and sustainment supplies and equipment delivered to the Corps TAAs in containers could not be off-loaded in a timely manner due to the lack of MHE/CHE. This exacerbated both the EAC transportation lift shortage and Materiel Management Center control problems.

OBSERVATION: Logisticians must better coordinate and track the use of containers in moving unit and sustainment supplies and equipment and insure that the containers can be successfully handled at ultimate destinations.

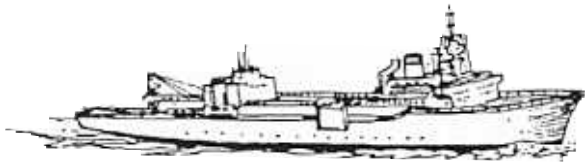
I. TOPIC: European Rail Operations (TL2 #7500)

DISCUSSION:

1. Because the Germans, British, and Americans sought the same rail assets to move equipment, requirements quickly exceeded peace-time capabilities. Competition between commercial, government, and military rail commitments for Host Nation assets strained the rail system and slowed the deployment of Coalition forces to Southwest Asia.

2. There was no agreement between Bundesbahn management and U.S. officials concerning conditions under which Bundesbahn support would be provided for non-European war deployments. American units had difficulties formulating their requirements in sufficient detail to meet the required time frame to order rail support. Some units, particularly combat support and combat service support, had little training in rail outloading requirements or in rail loading and tie-down procedures. This contributed to late submissions to U.S. movement control elements who had difficulty coordinating with the Bundesbahn to arrange for rail cars, schedules, locomotive power, and personnel.

OBSERVATION: Centralized control of U.S. rail movement in Europe must be maintained in order to reconcile conflicting transportation priorities. All units, especially CS and CSS units, require training in rail load operations and preparations.



J. TOPIC: Preparation for Sealift
(TL2 NO. 7470)

DISCUSSION:

Most deploying units observed during ODS had no experience in sealift operations. This was evident by the way secondary loads were prepared for sealift. Common errors observed included securing secondary loads to spot weld tie points; failure to use 3/4" hemp rope to tie secondary loads; failure to block and brace internal CONEX/container loads; and failure to stencil TCNs and to properly display LOGMARS labels on end items for movement. Secondary loads must be packed more securely for sealift because of the probability of rough sea conditions which may cause the loads to shift.

OBSERVATION: Most deployable U.S. Army units need to practice sea deployments and plan exercises which require ship use. Deployment should be part of every unit's METL.

K. TOPIC: Command Emphasis — Deployment Planning
(TL2 NO. 7474)

DISCUSSION:

Gross deployment planning is contingent on obtaining accurate TPFDD information early and reconciling the TPFDD with mode capability as unit missions and/or transportation asset availability changes. Constant TPFDD changes coupled with a lack of movements training in the units led to significant deployment planning and execution problems. Major subordinate units lacked familiarity with movement planning in the following areas:

1. Army Air Load Planning System (AALPS) particularly as it relates to summary airlift requirements by latest arrival date (LAD) or low priority movements.

2. Unit square footage sealift requirements as validated with the ITO.

3. Synchronizing personnel movements via Civil Reserve Air Fleet (CRAF) aircraft to coincide with the vessels' estimated times of arrival at the SPODs. In addition, upon arrival at the SPODs, the units often had no movement plans and did not know what vehicles in what priority to plan for onward movement convoys. This caused confusion and delayed the onward movement of troops and equipment.

OBSERVATION: The Army must have a vibrant, flexible movement control doctrine and system execution capability and emphasize the importance of unit movement training for all levels of war. Each unit's first Mission Essentisl Task must be to get to the war.

L. TOPIC: Unit Priorities — Sealift Port Calls
(TL2 #7488)

DISCUSSION:

Units moved to SPOEs configured for and based upon G3-directed SWA operational priorities. However, ship loading instructions to port personnel were based on the most efficient loading of the available sealift. Therefore, some units had equipment loaded on as many as five ships. Units also found that unit set integrity was not maintained, so that sometimes a trailer was separated from its prime mover. This further delayed the units onward movement to their TAAs in SWA.

OBSERVATION: Sealift port call experiences reinforced the importance of commanders adhering to CINC-determined deployment priorities, the need to synchronize the movement of units to ports based upon that priority, and the need for coordinated efforts in ship loading.

SECTION IV
ECHELON ABOVE CORPS

Some of the most vexing transportation problems occurred upon arrival of units in Saudi Arabia. Marrying up units and their equipment and then moving them to initial staging areas were far from simple, routine operations. But the subsequent onward movement of the ground forces to tactical assembly areas (TAAs) after the start of ***OPERATION DESERT STORM*** *was a most difficult challenge. Only the dedication of the Army's Transportation Corps units and personnel—active and reserve component alike — working with and directing significant additional host nation and contracted transportation support pulled off this tremendous feat of military movement.*

A. TOPIC: Lack of Motor Vehicle Operators (TL2 No. 7466)

DISCUSSION:

1. The critical shortage of TC truck units in Saudi Arabia was aggravated by the shortage of drivers in the units. Their MTOEs did not provide sufficient drivers for continuous 24 hour operations, with most units having enough drivers only for single shift or reduced two shift operations. This greatly reduced actual mode capability.

2. There was no mechanism in place to rapidly expand the training base for 88Ms. There were insufficient 88M10s in the IRR to fill the needs of the commanders on the ground. Time constraints did not allow for adequate training of replacement filler 88Ms for deployment during contingency operations. Since the mission of combat units required all of their personnel to perform in their primary MOS (i.e. 11M, 12D, 13B, 19D), few of these personnel could be diverted to become fulltime motor vehicle operators. The need for an influx of filler 88Ms was critical. Mobile training teams from USATSCH trained in excess of 3000 88Ms from Dec 90 to Feb 91. Drivers were trained to operate automatic transmissions. However, once in theater, many were required to operate standard transmission vehicles and did not know how.

OBSERVATION: TC Truck unit MTOEs must provide for sufficient motor vehicle operators to support immediate, continuous long term operations for the contingency environment. Motor vehicle operators in the support sections of combat units must be manned by trained 88Ms. The IRR needs to identify and maintain a pool of at least 3,000 available 88Ms that can be called up during contingencies to meet driver shortfalls.

B. TOPIC: Communication and Automation Equipment in Theater (TL2 NO. 7469).

DISCUSSION:

1. State of the art communication and automation systems are required to meet timeliness demands for transportation operations and movements control information at all levels. The fielding of STAMIS systems and hardware to the total force has not been completed. In particular, corps and theater movements units lack hardware and software to accomplish their doctrinal mission. Fixes to date have been largely "band-aid" solutions. Faster, lighter and more interactive computers and software are required to meet the movements requirements of forces continually on the move.

2. Long range additional communications is a must, as there is an almost total inability for transportation units to communicate at corps level and below. Real time transportation data was usually nonexistent during ODS. Little, if any, of the transportation automation/ communication systems that do exist at corps and below are able to communicate with each other. In addition, Army watercraft and port operations personnel were unable to communicate with merchant ships or the U.S. Navy using organic radio equipment.

3. Most transportation units whose taskings were supposed to be controlled by the MCC, MCA and MCT lacked effective communications with those movements control activities. There must be a speed up in fielding of new and more capable communication - electronic systems to truck units, to include the Global Position System (GPS) on TC unit vehicles. Adequate communication capability is particularly critical in Reserve movement control units which must augment active components in a crisis.

OBSERVATION: TOEs must be reviewed to ensure adequate and capable communications, electronic and ADP systems - to include interservice capability where required - are authorized and on hand to meet TC unit mission needs in the contingency environment.

C. TOPIC: Automated Cargo Documentation Detachments (ACDs)
(TL2 No. 7467)

DISCUSSION:

The documentation platoon/ACD needs to go back into the terminal service company or the terminal battalion HQ. The unit commanders often do not see documentation as a part of their mission, and the documenters are not part of the company team. The unit commanders look to the battalion to provide the documentation function. A numbered company needs the documenters to accomplish its mission, who in turn need scanners and computers to do their jobs. The documenters must have the capability and connectivity to use CODES and the Worldwide Port System (WPS).

OBSERVATION: The current separate ACDs play a vital role in deployment but are often not considered a part of a unit. Commanders of terminal service companies need the services of the ACD personnel, but the current arrangement leaves commanders feeling that documentation is not their mission and the ACDs are not part of the company team.

D. TOPIC: Handling Ammunition
(TL2 No. 7475)

DISCUSSION:

During ODS ammunition being unloaded in SWA ports, whether in LASH barges or directly across piers, collected in the port areas in unsafe amounts, particularly considering the potentially hostile environment. This ammunition should have been discharged into trucks for transportation to Ammunition Supply Points (ASPs). However, late deployment of engineer units, ammunition handling units and transportation units delayed development of the ASPs with the resulting delay in moving ammunition from the ports.

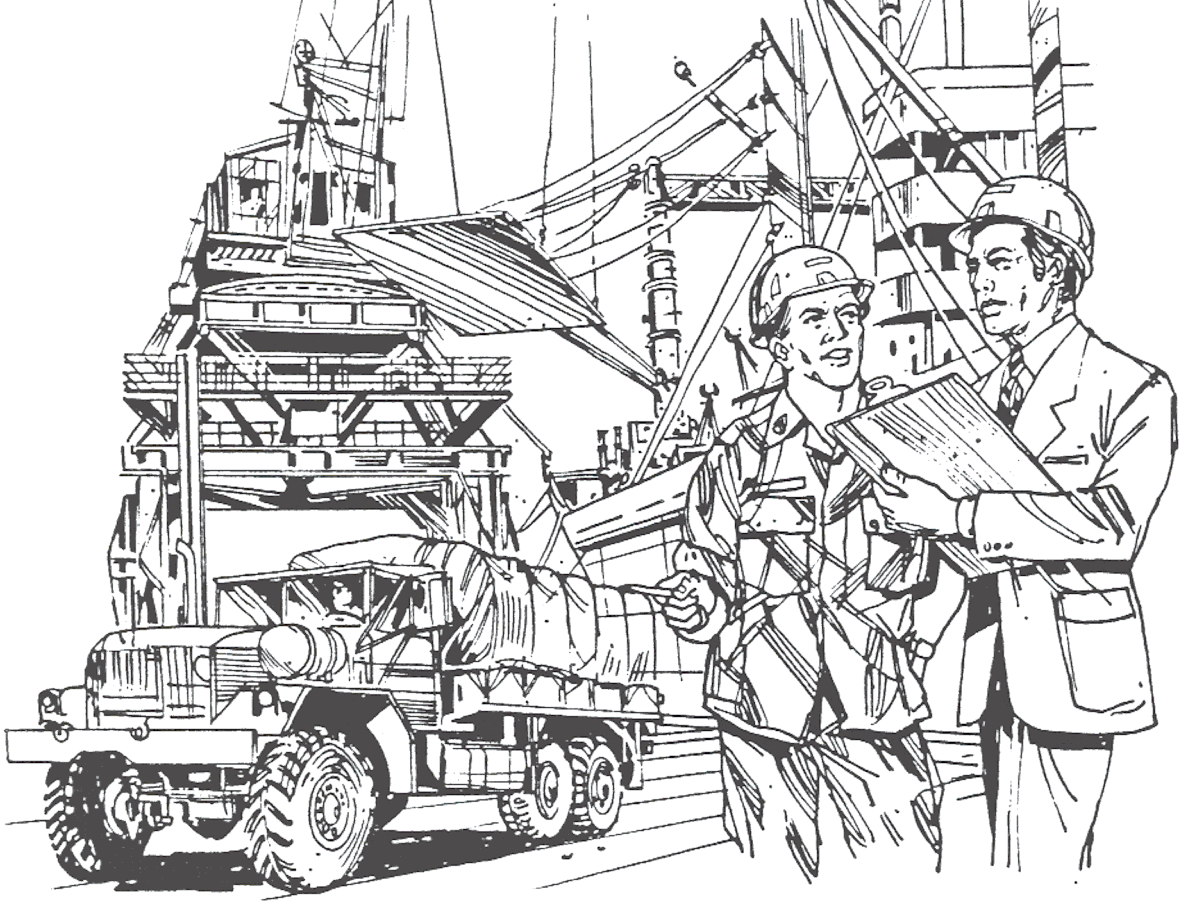
OBSERVATON: Late deployment of engineer, ammunition handling and transportation units caused unnecessary delays in the building of ASPs and unsafe amounts of ammunition backlogged in the ports. A balanced TPFDD is essential for proper support of combat units.

E. TOPIC: RC Deployment and Operations in Theater
(TL2 No. 7477)

DISCUSSION:

1. Many RC units deployed with no communications equipment other than some limited organic FM assets. This caused tremendous command and control problems since the numbers and types of radios authorized were inadequate given the long distances over which operations were required.

2. RC units in general deployed with totally insufficient quantities of PLL. The stockage requirements in peacetime do not adequately reflect the requirements of a wartime scenario. This area needs to be closely evaluated and procedures adjusted.



3. Trailer Transfer Points proved essential to the rapid deployment of supplies, but the organization of these units needs to be improved. Lack of personnel, maintenance capabilities and communications equipment severely impacted the required 24-hour operations capability.

OBSERVATION: Deploying RC units without sufficient communications, required vital TOE equipment, and PLL is detrimental to overall theater operations. The TTP TOE is insufficiently robust for effective 24 hour operations.

F. TOPIC: Advance Cargo Manifests at Aerial Port of Debarkation (APOD) and Sea Port Debarkation (SPOD)
(TL2 # 7487)

DISCUSSION:

Personnel operating the APODs and SPODs must have advance cargo manifests to arrange for the reception of cargo and personnel. This information is also required for planning effective onward movement of cargo and personnel. Existing ADP systems do not adequately meet these requirments.

OBSERVATION: Adequate and timely reception and onward movement planning at SPOD/APOD cannot be accomplished in a synchronized fashion in the contingency Army arena without a real time, reliable intransit visibility and advance documentation STAMIS.

G. TOPIC: Link between ULN and UIC
(TL2 #7491)

DISCUSSION:

1. The supported CINCs requisitioned forces by UIC, and the services filled the requisitions by UIC. The JOPES system used to plan and execute the deployment required identification of the forces by ULNs. Most unit level personnel had no clue as to what ULNs they were being deployed against, leading to confusion in sorting out deploying forces at SPOEs/APOEs as well as in their subsequent movement reporting and tracking.

2. During ODS, USTRANSCOM wanted wheels-up information on departing aircraft by ULNs. The only way the departing forces HQs could match ULNs with UICs was from a classified document that was not readily available to the deploying forces.

3. Additionally, IAW current MILSTAMP procedures, unit associated 463L pallets were shipped by TCN. The first six characters of that TCN were the UIC, but they were subsequently force tracked by ULN (another six character field). (NOTE: The Marine Corps is planning to ship future unit deployment pallets by ULN vice UIC TCNs.)

OBSERVATION: In deployment operations for a contingency oriented Army, the deployment STAMISs should require a common, widely known unit designation identification system link to facilitate intransit visibility and to preclude loss of deployment accountability.

H. TOPIC: Intransit Visibility
TL2 #7492)

DISCUSSION:

1. ODS illustrated anew the urgent need to harness new technology to maintain visibility of cargo and personnel in transit. Documentation and manifests had an unacceptably high error rate, container documentation was missing, and ship stow plans were continually late in arriving at SPOEs and SPODs, complicating already difficult operations. Lack of an on-line, real time, user friendly and widely available strategic STAMIS hampered accountability and visibility by commanders in deployment, employment and sustainment, and redeployment.

2. The inability of existing software systems to communicate with one another restricted our ability to properly manifest passengers and notify gaining commands of the imminent arrival of passengers, so they could be met at the airfield. Personnel, logistics, and transportation systems cannot communicate with one another and use common manifests without extensive manual imput.

3. Deploying units, ITOs and other shippers need to understand and fully implement the concepts and criticality of detailed cargo documentation, nested cargo techniques, scanner training, and accurately maintaining and updating the Automated Unit Equipment Listings (AUELs).

OBSERVATION: Our contingency oriented Army must have an adequate, integrated, real time, user friendly STAMIS to meet the needs of strategic deployment. In addition, installation and unit level deployment training needs to be upgraded and emphasized — train as you go to war!

I. TOPIC: Host Nation Support
(TL2 #7493)

DISCUSSION:

Host Nation support and contracting for commercial equipment was a success story during ODS. Contracting filled many requirements for materiel, supplies, transportation, and services. The host nation can be an important source of information for identifying potential contractors, but contracting must be centrally managed for all services to prevent duplication of efforts and to avoid an internal bidding war for services.

OBSERVATION: Contracting officers must be deployed early with their units' advance party so that timely support can be provided when the main body arrives. Host nation support must be centrally managed.

J. TOPIC: Semitrailer to Truck Ratios in Medium Truck Companies
TL2 #7501)

DISCUSSION:

1. During ODS it quickly became evident that the present semitrailer to truck ratio in medium truck company TOEs was insufficient to carry out efficient through-put and trailer interchange during linehaul operations. The 2:1 or 2.5:1 ratios did not take into effect the "fog of war" factors. They also do not consider the sub-optimization that occurs when one very small aspect of the overall logistics system does not operate as expected, for whatever reason.

2. The through-put distance from SPOD to forward logistics bases was over 450 KMs. Many factors, such as the shortage of MHE in forward areas and the uncertainty of the military situation, conspired to prevent (from a transportation system perspective) the timely downloading of semitrailers. Thus, they were often dropped at destination with the tractor returning bobtail.

3. During the height of wartime preparations leading to the ODS ground phase, there was a severe shortage of semitrailers to haul cargo forward. If the enemy had been a more potent foe, this shortage could have adversely impacted combat operations.

OBSERVATION: TOE development models used to set semitrailer to truck ratios in medium truck companies do not adequately include "fog of war" factors. As a result there were insufficient semitrailers available in medium truck companies to meet mission requirements during ODS.

K. TOPIC: EAC General Support Truck Transportation Mobility Needs (TL2 #7503)

DISCUSSION:

1. ODS vividly demonstrated that the mobility requirements of EAC general support truck transportation assets must be the same as that for corps transportation assets. Often, the battlefield situation dictated that the war fighting commander use the EAC transportation assets directly in support of the committed corps and division commanders.

2. In the dynamic environment of the AirLand Battlefield, there should be no formal transportation demarcation line on the battlefield to mark the transition from dedicated use of the EAC assets to the use of corps assets. EAC transportation assets may routinely be required to operate in corps and even division areas. Therefore, the mobility of the EAC transportation systems must be the same as their corps level counterparts.

3. The effect of this modification on our future tactical wheeled vehicle procurements shoud be to ensure that they can do the job not only in the EAC, but also in the corps and division areas. The M915 series truck tractors do not and cannot meet this mobility requirement. Since the M915 series truck tractor accompanied the front-line soldiers in the attack, its replacement must be of equal mobility and robustness to the tactical tractors (same tractor?).

OBSERVATION: During wartime, the battlefield commander will likely require EAC transportation assets to directly support corps and even divisons, thus requiring all future tactical wheeled vehicles to have a mobility capability equal to those required for corps and division truck units.

SECTION V
CORPS

Observations in this section particularly highlight some of the highway transport operations problems. Truck capability deficiencies and vehicle shortages of all types presented daily movement management problems, both great and small.

A. TOPIC: Heavy Equipment Transport (HET) Company Force Structure
(TL2 No. 7462)

DISCUSSION:

1. The criticality of our truck modernization programs was reinforced during *OPERATIONS DESERT SHIELD/DESERT STORM*. The movement of our heavy armored and mechanized forces from the ports of debarkation forward was made possible only by the extensive use of HETs. HETs were required to move entire units over vast distances to off-road locations at forward tactical assembly areas. These circumstances clearly validated the need for a 70-ton HET system with an increased maneuverability as well as an off-road capability.

2. Port clearance, long highway movements, and tactical operations in Western Iraq required large numbers of HETs to move U.S. heavy forces. However, U.S. units had no such numbers of HETs authorized or on-hand. Leased Host Nation support and civilian contracts were the only way to even partially meet mobility requirements. As a result of the shortage of HETs, it took much longer than planned to position all heavy forces for the ground phase.

OBSERVATION: This is a verification of a recognized force structure shortfall already being corrected through the development of the new 96-HET company and the new 70-ton HET system.

B. TOPIC: Vehicle Shortage
(TL2 NO. 7471)

DISCUSSION:

1. During the deployment of U.S. ground forces to ODS, it became obvious that most units do not have enough organic wheeled vehicles to effectively meet requirements to prepare the unit for combat. Because of the late sequencing in the deployment of trucks units, the movements control elements did not have sufficient transportation units with enough drivers to meet all the transportation needs to support the combat units. In addition, most CSS units lack enough assets to be 100% mobile using organic equipment. This made the total movement equation impossible to solve to meet the combat commanders intent in the time frames required.

2. During ODS Host Nation transportation support provided much of the available truck support capability and was used to the fullest extent posssible. However, the Army cannot always assume that significant transportation assets will be available through HN channels in future operations to meet combat support and combat service support wartime movement needs.

OBSERVATION: Deployment planning must consider the early sequencing of suffficient transportation units so that arriving combat arms units can be supported to meet their minimum mobility needs before hostile actions ensue.

C. TOPIC: Corps Movement Control Center (MCC) During Deployment
(TL2 No. 7472).

DISCUSSION:

Although the Corps MCC is administratively controlled by the COSCOM, during major deployments it must also be operationally integrated into the Corps EOC. Restricting the Corps-level MCC staff to the COSCOM EOC results in inefficient management and redundancy of effort within the Corps and constrains the Corps' ability to effectively coordinate other major Corps operational movements.

OBSERVATION: The Corps MCC must have a movements planning and operations cell integral to and located with the Corps EOC for effective movements planning and response.

D. TOPIC: Movements Control
(TL2 #7485)

DISCUSSION:

1. Commanders need to ensure discipline in deploying units with respect to the orderly, synchronized implementation of their movement instructions and documented load plans. Too frequently, units showed up at times or ports of embarkation other than those specified in their instructions and with twice as much equipment as called for by their own load plans.

2. All units required an explanation of the roles and functions of major movement control players and systems at corps level and below, as well as basic information on how the units fit into the movements control system.

OBSERVATION: Our future contingency oriented Army requires far more training emphasis and preparation for strategic deployment by sea and air lift. All units should have deployment and getting to war as the first item on their METL.

E. TOPIC: Trucks with Off-Road Capabiltiy
(TL2 #7496)

DISCUSSION:

The current fleet of tactical wheeled vehicles, with the exception of the M939A2, HEMTT, and HMMWV, does not possess the required off-road mobility needed to support highly mobile combat forces. The next generation of wheeled vehicles, to include the FMTV and PLS, must have significantly improved mobility for better off-road operations in support of tactical forces. Transportation units must have cross-country mobility of a level equal to the units they potentially could support.

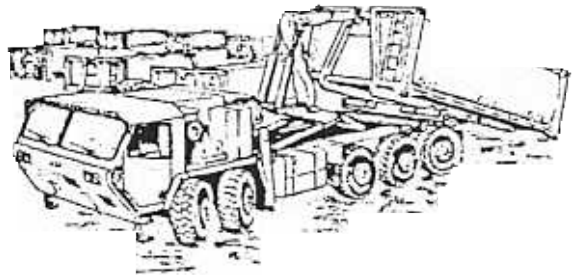
OBSERVATION: The offroad mobility enhancements found in today's M939A2, HEMTT, and HMMWV not only need to be included in the future FMTV, PLS and HET, but should also be retrofitted to older vehicles in order to improve overall fleet mobility.

F. TOPIC: Multi-functional Logistics Task
(TL2 #7499)

DISCUSSION:

Logistics Task Forces (LTFs) normally should be multi-functional to adequately support the forward Corps MSCs. While "pure" functionally oriented organizations are inevitable in the EAC and rear CSG, LTFs provided the flexibility and immediacy necessary to provide adequate support forward to the committed MSCs. However, the use of functional task forces, such as concentrated transport support and class III units, are still required by commanders to weight the battle.

OBSERVATION: Logistical support provided to the supported MSCs in the forward areas should normally be multi-functional. However, some concentrated transport and class III support is still needed to allow the corps commander to functionally concentrate certain support forces to immediately influence the battle.



G. TOPIC: Interface Between Line Haul

Semitrailers and PLS
(TL2 #7502)

DISCUSSION:

The potential of the PLS system is tremendous in terms of individual and equipment productivity. Present transportation doctrine calls for the through-put of cargo as far forward as possible, to divisions and even brigade trains areas. However, to realize the full potential of the PLS system, it seems necessary to transfer the cargo from through-put containers being hauled on EAC semitrailers to PLS flatracks. Where and how is this going to occur? Will the through-put doctrine be modified to normally through-put to the corps area? If the transfer from EAC semitrailers to PLS flatracks is to occur in the corps area, will there be sufficient force structure and MHE/CHE there to accomplish the mission?

OBSERVATION: The systemic interface of PLS requires further doctrinal development and clarification.

SECTION VI
DIVISION

Observations from this area are a mixed bag and cover divergent fields. They vary from doctrinal matters to organizational and vehicle refinements.

A. TOPIC: Container Handling Equipment (CHE)/Material Handling Equipment (MHE) Shortages in Divisions
(TL2 NO. 7465)

DISCUSSION:

The lack of CHE and sufficient MHE in divisional unit TOEs was a significant distribution related problem. Units could not download containers from the line haul transportation assets upon arrival in their areas. Therefore, the containers were opened and their contents unstuffed and grounded or loaded into organic divisional trucks, unnecessarily tying up the waiting line haul assets. CHE were sometimes diverted from EAC units to assist in container handling. When downloaded, the containers were often kept by the units because there was no immediate use for the contents or because there was insufficient MHE to unstuff them. This became a significant mobility problem as thousands of containers were moved up country.

OBSERVATION: Containers and container handling in the division and forward corps areas represent a significant challenge in wartime. Tremendous demands for supplies and equipment can quickly outstrip the organic capabilities of units in those areas to effectively deal with containers. Container policy and supporting force structure require concerted high level study and clarification.

B. TOPIC: Need for Placing Knowledgeable Transporters at Tactical Headquarters and Need for Deployment Doctrine
(TL2 NO. 7468)

DISCUSSION:

1. Having TC movements planners internal and intergral to corps and division subordinate headquarters would facilitate unit movements planning in a contingency based Army. During ODS, they would have helped battalion-sized units adequately prepare and execute outloading for strategic deployment and redeployment and for subsequent in-theater movements control. Unit movements planning is a perishable skill which must be trained and practiced over and over. Lack of movements planners in deploying units hampered movements control in all phases of SWA theater operations. A contingency oriented Army requires all branches to be taught unit movements planning and operations. Every deploying unit's first Mission Essential Task is to get to the war.

2. Unit deployments during ODS revealed that home station planning and outloading were problems in Europe and CONUS. Units combat loaded equipment and then shipped it to the ports without a full understanding or appreciation of what deployment by sea entails. Secondary loads were often not in accordance with unit load plans and were not adequately secured to withstand the sea voyage.

OBSERVATION: All units with a contingency mission require more training and expertise in all aspects of unit movements planning and execution. They must be capable of carrying out efficient and effective unit preparations for deployment, in-theater movement to forward assembly areas, and redeployment after in-theater operations are completed. Placing an 88N NCO or TC officer into the TOEs of all Bn/Bde/Gp level TOEs (with a contingency mission) for the purpose of planning and coordinating unit movements could help resolve these problems.

C TOPIC: Lack of TPFDD Flexibility (TL2 No. 7476)

DISCUSSION:

The lack of flexibility in the TPFDD process and ignorance of or lack of familiarity with JOPES complicated in-theater early support requirements. Deployed commanders with shortages of critical organic supplies and equipment often could not get them inserted into the deployment flow. When they tried to get them shipped via ALOC, they ran into delays because of other competing high priority personnel or equipment. This was especially critical in the early phases of the deployment before the ALOC was firmly established and such capability was scarce.

OBSERVATION: The contingency oriented Army needs more flexibility in deployment sequencing during execution and must have greater general expertise in deployment systems by unit operations and logistics personnel at all levels. The supported CINC must receive deploying units with all critical personnel and equipment on a timely planned basis to support the assigned mission.

D. TOPIC: Deployment of Personnel (TL2 #7497)

DISCUSSION:

Some soldiers with certain medical problems had difficulty obtaining informed care in SWA. For example, one TC person with high blood pressure and one with asthma deployed to Saudi Arabia only to be medically evacuated because they could not be treated without their medical records. Soldiers should be required to take pertinent extract copies of their medical records with them when deploying. These will alert medical personnel of soldiers' medical histories and any type of medication they may require. Since TDY/ attached status may become the way future deployments are accomplished, special accommodations must be made to ensure that the health care provided to soldiers is not substandard.

OBSERVATION: The current doctrine of not sending soldier medical records along with opeational TDY deployments does not foster an adequate care situation in some cases and needs reevaluation.

E. TOPIC: Robustness of CUCV (TL2 #7504)

DISCUSSION:

Although the CUCV has proven to be an acceptable general purpose vehicle in peacetime, it did not stand up well to the rigors of the SWA battlefield. The needs of war often dictated that the CUCV be used for extended periods in an off-road, hard use environment. The perception of the field is that the CUCV was found to be lacking when subjected to hard battlefield use. Planned vehicle usage and peacetime actual use of vehicles do not always accurately reflect and equate to wartime requirements.

OBSERVATION: The general purpose utility vehicles in future combat support and combat service support units operating in the corps and division areas must be as robust and capable as those for the combat arms units they support.

SECTION VII

CONCLUSION:

The lessons learned cycle must be an on-going process, and we are still receiving and reviewing comments and observations from SWA. We will process these observations and integrate them into our doctrine and programs of instruction as they are received in coming months. What observations we have gathered to date have not provided many surprises, but have validated some long expected shortcomings and anticipated successes. The leaders of the Army of today and tomorrow must ensure that we use our experiences to learn and integrate the right lessons, the appropriate lessons for future conflicts, so we can use the strengths of our soldiers and equipment to fight the next war smarter and even more effectively.

GLOSSARY OF ACRONYMS

ACRONYM	MEANING
AALPS	Army Air Load Planning System
ACD	Automated Cargo Detachment
ALOC	Air Lines of Communication
APOD	Aerial Port of Debarkation
APOE	Aerial Port of Embarkation
ASP	Ammunition Supply Point
AUEL	Automated Unit Equipment List
BDE	Brigade
BN	Battalion
CASCOM	Combined Arms Support Command
CHE	Container Handling Equipment
CINC	Commander in Chief
CSG	Corps Support Group
CUCV	Commercial Utility Cargo Vehicle
DA	Department of the Army
EAC	Echelons Above Corps
FMTV	Family of Medium Tactical Vehicles
FSS	Fast Sealift Ship
GP	Group
GPS	Global Positioning System
HET	Heavy Equuipment Transporter
HN	Host Nation
IMA	Individual Mobilization Augmentee
IRR	Individual Ready Reserve
ITO	Installation Transportation Office(r)
LTF	Logistics Task Force
MCA	Movement Control Agency
MCC	Movement Control Center
MCT	Movement Control Team
METL	Mission Essential Task List
MHE	Materiel Handling Equipment
MMC	Materiel Management Center
MSC	Major Subordinate Command
MTMC	Military Traffic Management Command
MTOE	Modified Table of Organization and Equipment
PLL	Prescribed Load List
PLS	Palletized Load System
RC	Reserve Components
SPOD	Sea Port of Debarkation
SPOE	Sea Port of Embarkation
STAMIS	Standard Army Management Information System
SWA	Southwest Aisa
TAA	Tactical Assembly Area
TC	Transportation Corps
TCN	Transportation Control Number
TDA	Table of Distribution and Allowances
TDY	Temporary Duty
TL2	Transportation Lessons Learned Database
TOE	Table of Organization and Equipment
TPFDD	Time-Phased Force Deployment Data
TTP	Trailer Transfer Point
TTU	Transportation Terminal Unit
UIC	Unit Identification Code
ULN	Unit Line Number
UMR	Unit Manning Report
USATSCH	U.S. Army Transportation School
USTRANSCOM	U.S. Transportation Command
WPS	Worldwide Port System

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